CLAIMS

1. Method for transmitting power to the wheels (4) of a motor vehicle comprising a heat engine (1, 10) and at least one electric machine (2, 20, 30) associated with a static energy converter (6, 21, 31) and with means for supplying and storing energy, the method consisting in recuperating and storing the kinetic energy of the vehicle in supply and storage means consisting in a super-capacity (8, 80) and in reusing the stored energy to supply power to the wheels when the speed of the vehicle is stabilized, the heat engine (1, 10) thus being shut down.

2. Method according to claim 1, wherein the stabilized speed at which the power supplied to the wheels (4) comes from the super-capacity (8, 80) is less than or equal to about 50kph.

3. Method according to claim 1, wherein the stabilized speed at which the power supplied to the wheels (4) comes from the super-capacity (8, 80) is less than or equal to about 30kph.

4. Method according to any of claims 1 to 3, also consisting in controlling the voltage at the terminals of the static energy converter (6, 21, 31) in order to keep it substantially constant and near to the maximum value allowed by the power semiconductor of the static energy converter.

5. Method according to claim 4, wherein the voltage at the terminals of the static energy converter (6, 21, 31) is kept at a reference value U_{ref}, equal to:

$$U_{ref}=MIN[(U_1-\lambda.1);MAX(U_2;(U_3/k))]$$

where: U_1 is the withstand voltage of the power semiconductors;

$\lambda.1$ is the over-voltage at the terminals of the power semiconductors, 1 being the current passing through the electric machine;

U_2 is the difference between U_1 and the maximum over-voltage at the terminals of the semiconductors;

U_3 is the voltage at the terminals of the electric machine; and

k is a constant coefficient referred to as the PWM coefficient (Pulse Width Modulation).

6. Method according to claim 4, wherein the voltage at the terminals of the static energy converter (6, 21, 31) is kept between two limit vales, the first corresponding to U_2 and the second corresponding to (U_1-$\lambda.1$), where:

U_1 is the withstand voltage of the power semiconductors;

$\lambda.1$ is the over-voltage at the terminals of the power semiconductors, 1 being the current passing through the electric machine;

U_2 is the difference between U_1 and the maximum over-voltage at the terminals of the semiconductors.

7. Method according to claim 4, wherein the control of the voltage at the terminals of the static energy converter (6, 21, 31) consists in keeping this voltage at U_2, that being the difference between U_1, the withstand voltage of the power semiconductors, and the maximum over-voltage at the terminals of the semiconductors.

8. Device for transmitting power to the wheels (4) of a motor vehicle in order to implement the method according to any of claims 1 to 7, comprising a heat

engine (1, 10) and at least one electric machine (2, 20, 30) associated with a static energy converter (6, 21, 31) and with means for supplying and storing energy, characterized in that the supply and storage means consist in a super-capacity (8, 80), the static energy converter associated with an electric machine being connected to the super-capacity via a reversible DC-DC converter (9, 90).

9. Method according to claim 8, characterized in that the reversible DC-DC converter is "reversible DC-DC converter" (9) type, comprising two transistors (900, 901).

10. Method according to claim 8, characterized in that the reversible DC-DC converter comprises two resonance converters (91, 92), between which the super-capacity (80) is connected.